REMARKS

Claim 33 was amended to correct a typographical error. As this amendment was not made for a reason related to patentability, the full scope of equivalents of claim 33, and all of the other claims, should remain intact.

Claims 1-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Malki et al., "Low Latency Handoff in Mobile IPv4, Internet Draft, pages 1-65, May 2001, hereafter referred to as Malki et al.

This rejection is respectfully disagreed with, and is traversed below.

It is noted that the applicants have previously cited a later version of Malki et al. (June 2002) in the IDS filed with the application.

The following comments regarding Malki et al. are provided so as to highlight the significant distinctions between the approaches of Malki et al. and the instant invention, and are not to be construed as in any way to limit the scope of this invention, or to interpret or construe the meaning of the claim language of the instant patent application.

As a general observation, Malki et al. wish to reduce the IP level latency when moving between two Foreign Agents (FAs, the old FA (oFA) and the new FA (nFA)). Malki et al. use Layer 2 (L2) triggers, but don't specifically define any particular L2 triggers. It is noted that the embodiments of this invention do not require the use of L2 triggers at the new point of attachment.

A goal of Malki et al. is to allow the Mobile Node (MN) to communicate with the new FA while still being connected to the old FA, and to provide for data delivery to the MN at the new FA before the full IP registration is completed. Malki et al. assume that Mobile IPv4 is running on the two FAs. Both the mobility protocol and the version are important. Malki et al. further

assume that a security relationship exists between the two FAs. This is clearly stated in Section 9.

Malki et al. propose three methods to achieve low latency for IP level handovers. It is important to note that their approach ends at the IP level, and that they do not consider changes at higher layers at all, which are important to achieve true seamless handovers.

Significantly, Malki et al. clearly state in Appendix B that Quality of Service (QoS), cost, etc are out of their scope:

> "Suppose MN enters the coverage area of RN2 and nFA and that it prefers connectivity to this network for reasons beyond the scope of this document (e.g. user preferences, cost, QoS available etc.)."

Therefore creating state *apriori* to accommodate QoS requirements and other factors are not considered.

In the Pre-Registration approach proposed by Malki et al. the old FA solicits a router advertisement from the new FA, and the new FA sends a router advertisement. For this to occur, as was noted above, there has to be a trust/security association between the two FAs, which reduces the applicability of this approach. The router advertisement that is received from the new FA is either forwarded directly to the MN or is sent as a response to the MN's request. Next the MN, based on the registration, contacts the new FA directly. Malki et al. rely on L2 identifiers that inform the old FA (in case of network initiated cases) of the MN's IP address, as well as the L2 identifier at the new FA. Also, when the new FA has to contact the MN directly there is a trigger (Malki et al. do not explain how the trigger gets the IP address of the MN at the new FA) received at the new FA. In the case of multiple interfaces Malki et al. consider getting new FA advertisements via the old network, but again they assume a trust relationship to exist between the two networks. Although Malki et al. broadly claim that their mechanism will work between networks of different technologies, they don't explain how this would occur, and they do not necessarily prove that their messages can take all of the necessary parameters for this to occur

in reality.

Malki et al. assume that the old FA somehow knows the IP address of the new FA *apriori*. Even when the MN solicits the new FA via the old FA, Malki et al. state that the MN must inform the new FA of the old FA, a requirement that is clearly not present in accordance with the teachings of this invention.

In the Post-Registration approach proposed by Malki et al. they discuss network-initiated handovers, while the teachings of this invention are most concerned with mobile-initiated handovers. In accordance with Malki et al. the old FA acts as a proxy for the MN and sends handoff requests to the new FA. All IP and L2 level handoff messages are sent between the old FA and new FA, without requiring the activity of the MN. Again, the assumption here is that the old FA and the new FA trust each other, which is not true in a general case.

In the Combined Registration approach proposed by Malki et al. there is a combination of the two foregoing approaches that is presented as a fall back, and thus this approach would suffer from the same deficiencies discussed above.

Further, Malki et al. discuss no new ways of authenticating and authorizing MNs at the new network, as is done in the instant patent application.

In summary, Malki et al. make some assumptions that are not made or required by the teachings of this invention. For example, the instant patent application can function without Mobile IPv4, and without a trust relationship between the new domain and the old domain.

Turning now to the specific claim language, the Examiner has stated that Malki et al. anticipate the first element of claim 1. Turning to page 14 of Malki et al. (in the Examiner's provided printed version, which is actually page 9 of the document available from: http://www.ietf.org/proceedings/01aug/I-D/draft-ietf-mobileip-lowlatency-handoffs-v4-01.txt) what is actually stated is that:

"1. **Messages 1a and 1b contain a solicitation of a Router Advertisement by oFA from nFA and a reply Router Advertisement from nFA**. These messages SHOULD occur in advance of the PRE-REGISTRATION Handoff in order to not delay the handoff. For this to occur, oFA MAY solicit and cache advertisements from the nFA, thus decoupling the timing of this exchange from the rest of the PRE-REGISTRATION Handoff. When the L3 handoff is initiated by a target L2 trigger at nFA, message 1b is sent unsolicited directly to MN rather than relayed by oFA.

2. The presence of message 2a indicates that the handoff is mobile- initated and its absence means that the handoff is network-initiated. In mobile-initiated handoff, message 2a occurs if there is an L2 trigger in the MN to solicit for a Proxy Router Advertisement. When message 2a is received by the oFA, the oFA returns the Proxy Router Advertisement in message 2b. In network-initiated handoff, the L2 trigger occurs at oFA and oFA relays the Router Advertisement in message 2b without the need for MN to solicit. Note that it is also possible for nFA to advertise directly to the MN in the network-initiated target-trigger case (section 3.2). In all cases message 2b is simply nFA's router advertisement" (emphasis added).

However, the first element of claim 1 states instead:

"**transmitting a Bearer Context message from the MN** for use by the cellular network, **the Bearer Context message comprising information for use in establishing at least one access bearer with the cellular network for an ongoing packet data session of the MN**" (emphasis added).

The use of Router Advertisement solicitation and reply messages in the Pre-Registration related disclosure of Malki et al. quoted above clearly does <u>not</u> expressly disclose or suggest the claimed subject matter. In fact, there is no express disclosure of a "Bearer Context message" in Malki et al., or any disclosure of a message having the purpose and functionality of the Bearer Context message.

This being the case, then Malki et al. also cannot anticipate the second element of claim 1, i.e.:

"**responding to the receipt of the Bearer Context message** with a Router Advertisement message that is forwarded towards the MN" (emphasis added).

In that claim 1 is clearly not anticipated by Malki et al., and is also clearly not rendered obvious by the disclosure of Malki et al., then claim 1 is patentable over Malki et al., as are all claims that depend from claim 1. Further in this regard, and by example only, claim 2 states that **"the Bearer Context message is piggybacked on another message"**, while page 23, first paragraph of Malki et al. instead states that:

> **"Piggy-backing advertisements on L2 messaging involves utilizing the L2 messaging involved in L2 handoff to transmit the Router Advertisement from the nFA to the MN or oFA.** When the first L2 handoff messages are exchanged, it may be possible to transmit a Router Advertisement piggybacked onto L2 messages. Alternatively, the L2 at oFA may cache nFA's advertisements and not need to receive Router Advertisements upon every L2 handoff initiation. Whether this technique is possible depends on the particulars of the L2 technology and is outside the scope of this document" (emphasis added).

Malki et al. thus also clearly do not anticipate claim 2.

Also by example, claim 3 expressly states that:

> **"the Bearer Context message comprises information expressive of a QoS requirement of an ongoing application or applications of the MN"** (emphasis added),

whereas that portion of Malki et al. cited by the Examiner is that portion noted above, and is the only mention of QoS in Malki et al., and in fact teaches away from the claimed invention as it states:

> "Suppose MN enters the coverage area of RN2 and nFA and that it **prefers connectivity to this network for reasons beyond the scope of this document (e.g.** user preferences, cost, **QoS available** etc.)" (emphasis added).

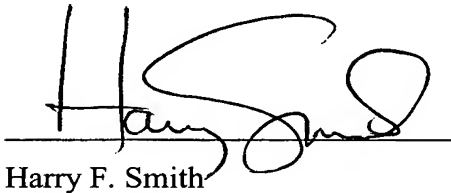Malki et al. thus also clearly do not anticipate claim 3.

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It is well recognized that "to constitute an anticipation, all material elements recited in a claim must be found in one unit of prior art", <u>Ex Parte Gould</u>, BPAI, 6 USPQ 2d, 1680, 1682 (1987), citing with approval <u>In re Marshall</u>, 578 F.2d 301, 304, 198 USPQ 344, 346 (CCPA 1978). In the instant case it is clear that not all "material elements" of claims 1-26 are found in Malki et al., and thus that Malki et al. cannot anticipate these claims under 35 U.S.C. 102(b).

The foregoing arguments apply as well to system claims 27-32, and to computer program claims 33-37 and 38-41, at least for the reason that each refers to the use of the "Bearer Context message".

The Examiner is respectfully requested to reconsider and remove the rejections of the claims under 35 U.S.C. 102(b) based on Malki et al., and to allow all of the pending claims 1-41. An early notification of the allowability of claims 1-41 is earnestly solicited.

Respectfully submitted:

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